

Dec. 13, 1949

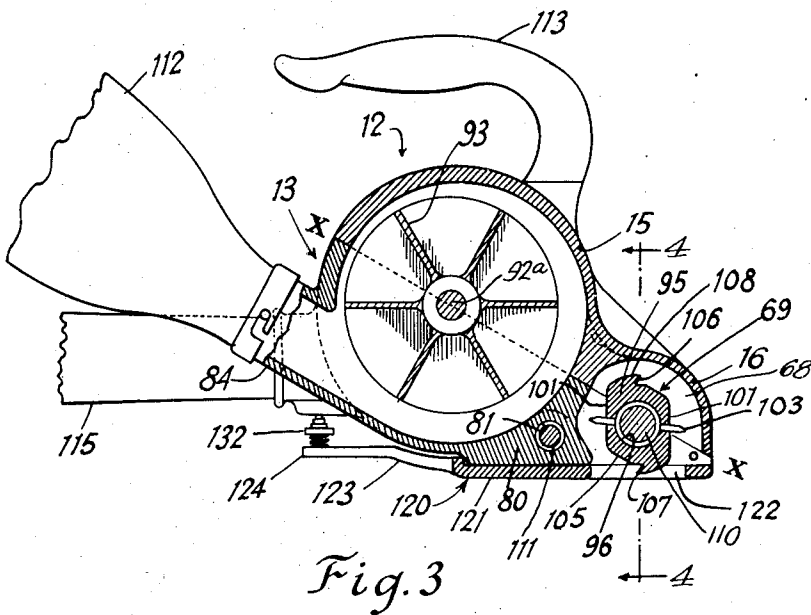
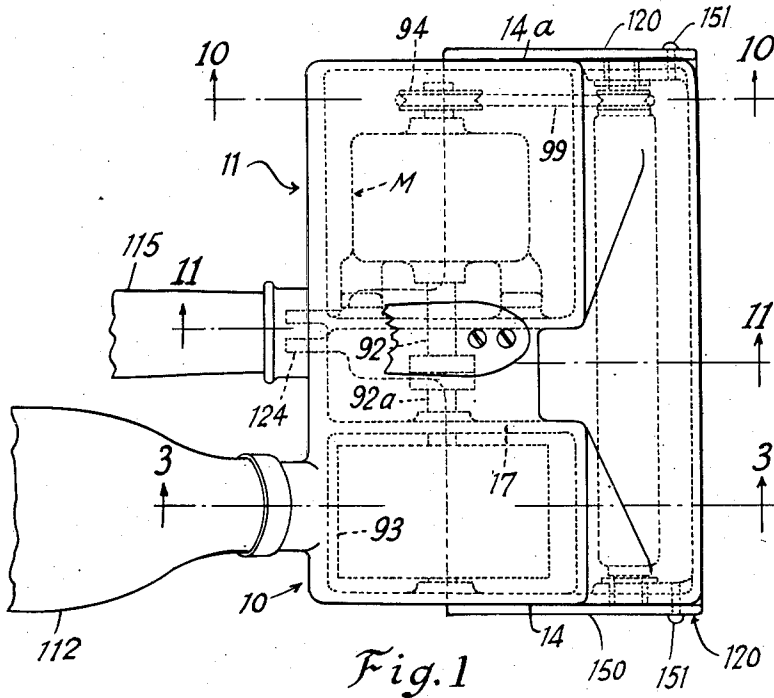
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2,491,007

FUR PROCESSING DEVICE

Filed Oct. 29, 1945

4 Sheets-Sheet 1



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FUR PROCESSING DEVICE

Filed Oct. 29, 1945

4 Sheets-Sheet 2

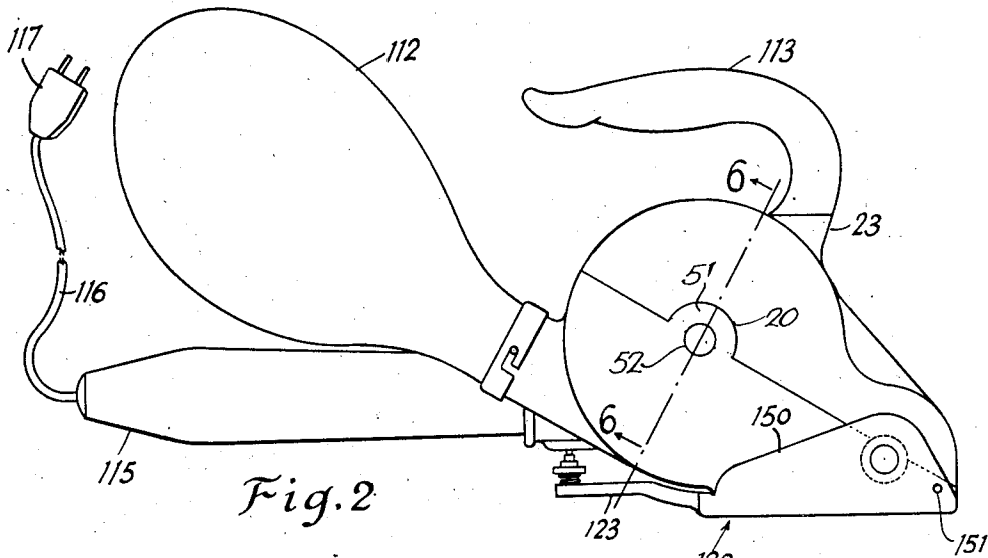


Fig. 2.

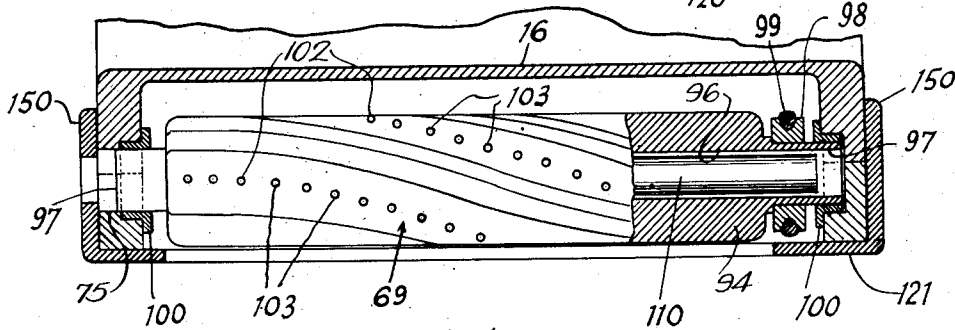


Fig. 4

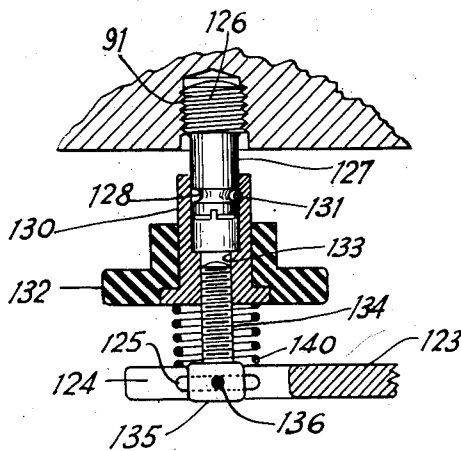


Fig. 5

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FUR PROCESSING DEVICE

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4 Sheets-Sheet 3

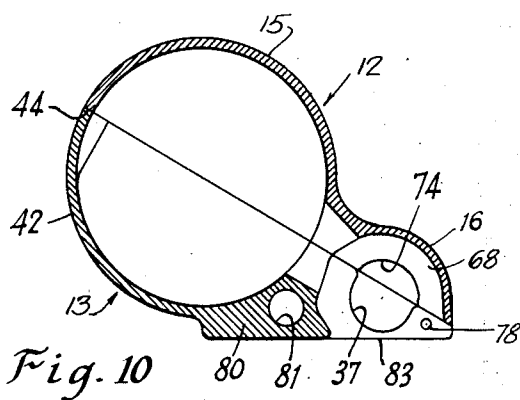


Fig. 10

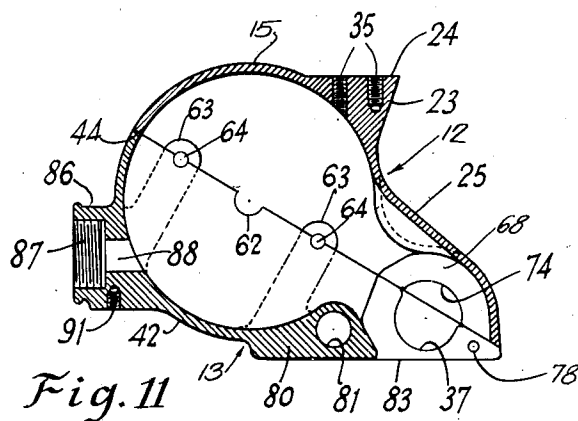


Fig. 11

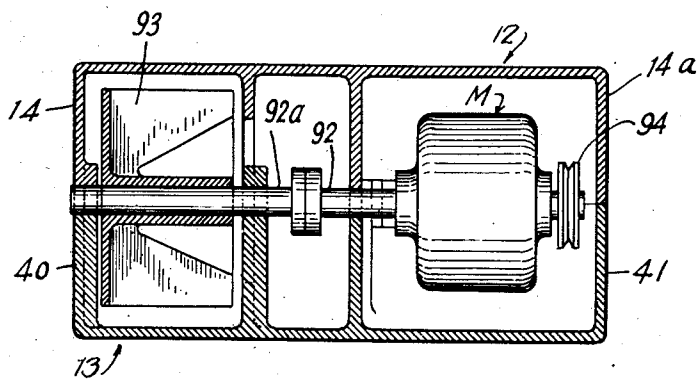


Fig. 6

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FUR PROCESSING DEVICE

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4 Sheets-Sheet 4

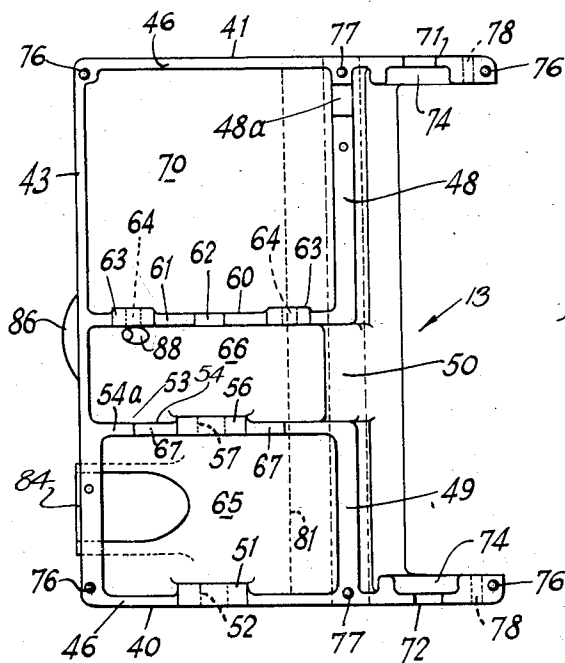


Fig. 7

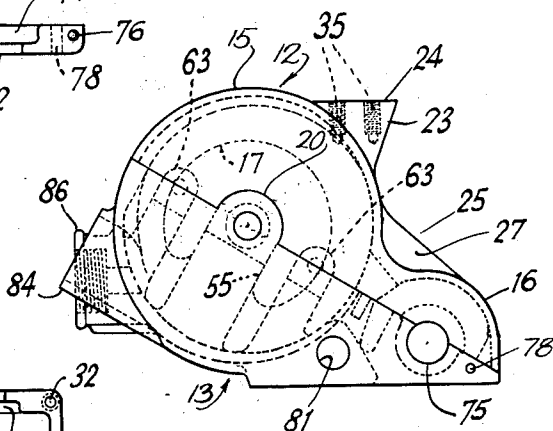


Fig. 9

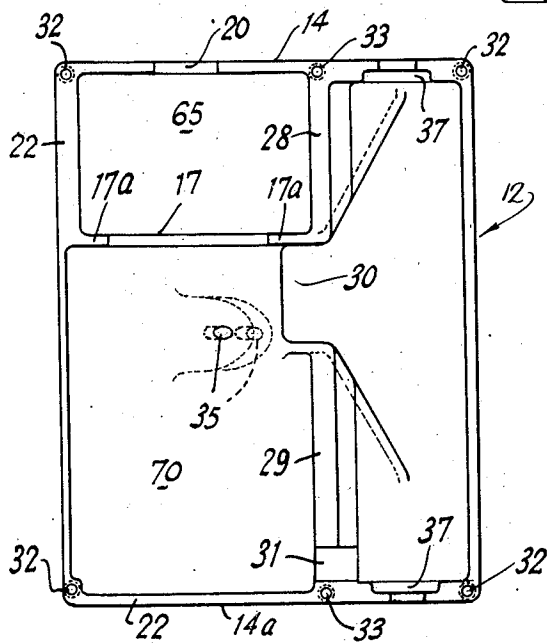


Fig. 8

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UNITED STATES PATENT OFFICE

2,491,007

FUR PROCESSING DEVICE

Max Koch, New York, N. Y., assignor, by direct and mesne assignments, of fifty per cent to Florence K. Edelstein and fifty per cent to Melvin J. Koch, both of New York, N. Y.

Application October 29, 1945, Serial No. 625,195

4 Claims. (Cl. 69—20)

1

2

This invention relates to fur processing device. It is particularly directed to new and useful improvements in apparatus for cleaning, combing, straightening the hairs of fur or pile fabric and for putting a sheen on the surface of any type of fur or pile fabric employed in producing apparel or other articles. The device embodying the invention can also be used on cloth material to perform the above mentioned finishing processes. This latter use is accomplished by the use of interchangeable rollers in the device.

One use of the device embodying the invention is to re-vivify a used or worn garment. The common practice in performing the finishing processes is:

1. To clean the fur. This is usually done by placing sawdust on the fur and beating the fur and vacuuming the fur to remove the dust and dirt; and

2. To comb the fur so that the hairs are all straight so as to present a smooth surface; and

3. To place a sheen on the fur. This is done by means of moistening the fur and using a hot iron to cause a fine gloss to appear on the surface.

The usual hand process is long and tedious. The use of existing devices on the market is still a tedious long process. Many prior devices are such that the combing is followed by the sheening. The time interval depends upon the operator.

The present invention is a combination cleaner, comber and sheener, all in one unit and is constructed as a portable device. The unique features are:

1. All the processes are done in one operation and all at one time. The sheening is instantaneous, i. e., the fur is combed and sheened in one operation. No interval of time elapses between any of the processes (cleaning, combing and sheening).

2. Since the cleaner is essentially a vacuum cleaner, the fur is pulled tight against the open surface of the device, thus providing a uniformity of pressure on the fur for combing and sheening.

3. The combing is accomplished by the use of a rotating roller, consisting of pins placed in a helical line on the roller. This same roller contains the ironing platens, also placed helically and longitudinally on the roller. Thus, as the hairs of the fur are cleaned, straightened and combed, the sheen is produced. The ironing is accomplished by using a heating unit, within the roller.

4. For different types of fur (some hair longer or shorter) an adjustable skid plate is provided

so that the combing pins do not cut into the fur skin.

5. In the event additional heat is required to produce the sheen and the center of the roller does not provide sufficient space, an additional heating unit may be placed in the section of the main frame adjacent to the skid plate.

6. There are two switches on the device; one is to turn on the motor for the operation of the vacuum cleaner and comber and the other is to turn on the heat in the roller. The heat in the roller will be thermostatically controlled.

7. The rollers are easily removed.

8. There may be varying types of rollers for combing, such as,

(a) Pins as shown on the assembly.

(b) A helical section of a wire brush (i. e., a wire brush instead of the steel pins).

Rollers may be provided for each finishing process separately, i. e., instead of performing all the processes in one operation, the device may be used as a vacuum cleaner only. The device may be used as a comber only. The device may be used as a sheener only. (Using special rollers for each process).

9. The handle of the device will be a hollow hand grip type, to permit a firm grip and to permit the wire from the power source to enter the mechanism.

10. The vacuum bag will be at the side of the mechanism, to the right when the device is held for use. If the fur to be cleaned is placed horizontally on a table then a flexible tube is inserted into the air exhaust and the bag can be placed upon the floor and out of the way.

Still another object of this invention is to provide a strong, rugged and durable portable device of the character described which shall be relatively inexpensive to manufacture, easy to assemble and manipulate, and which shall yet be practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown various possible illustrative embodiments of this invention,

Fig. 1 is a top plan view of a device embodying the invention;

Fig. 2 is a side elevational view thereof;

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 3;

Fig. 5 is a vertical cross-sectional view showing the mechanism for adjusting the skid plate;

Fig. 6 is a cross-sectional view taken on line 6—6 of Fig. 2;

Fig. 7 is a top plan view of the bottom casing section;

Fig. 8 is a bottom plan view of the top or cover casing section;

Fig. 9 is a side view of the casing;

Fig. 10 is a cross-sectional view taken on line 10—10 of the casing shown on Fig. 1; and

Fig. 11 is a cross-sectional view taken on line 11—11 of the casing shown in Fig. 1.

Referring now in detail to the drawing, 10 designates a device embodying the invention. The same comprises a two part casing 11 consisting of an upper or cover section or part 12, and a lower section or part 13 having mutually contacting edges on plane X—X indicated in Fig. 3 of the drawing. The cover section 12 comprises side walls 14 and 14a interconnected by a top rear substantially semi-cylindrical longitudinal wall 15, and a front substantially semi-cylindrical longitudinal wall 16. The top casing section is open at the bottom and formed with an intermediate annular transverse rib 17 parallel to side wall 14. Wall 14 is formed at its lower edge with a semi-circular opening 20 for the purpose hereinafter appearing. The rib 17 has lower edges 17a flush with the lower edge 22 of the upper casing section 12. Said upper casing section is furthermore formed with an integral, upward projection 23 formed with a horizontal top surface 24. Between casing portions 15 and 16 is a central raised channel 25 flaring in opposite directions towards casing portion 15. On opposite sides of the raised portion 25 are recesses 27.

Between the casing portions 15 and 16, and on opposite sides of the raised portion 25 are longitudinal partition walls 28 and 29, the lower surfaces of which are in the plane of edge 22. Between the partitions 28, 29 is a channel 30 formed below the raised wall 25. Partition 29 is formed with a notch 31 adjacent wall 14a. At the corners of the end edge of the casing section 12 are counterbored through holes 32. The end edges of walls 14 and 14a are formed with intermediate vertical counterbored through openings 33. Holes 32, 33 are at right angles to surface or edge 22 and are counterbored at their upper ends.

In the projection 23 are formed a pair of upwardly extending threaded openings 35 for the purpose hereinafter appearing. The portions of side walls 14 and 14a at the ends of the casing wall 15 are formed at their inner surfaces with part circular recesses 37.

The bottom casing section 13 is complementary to the top casing. It is provided with side walls 40 and 41 aligned with the side walls 14 and 14a respectively, of the top casing section. The side walls are interconnected by a bottom, substantially semi-circular wall 42. Wall 42 has a rear upper edge 43 which contacts the rear end edge 44 of casing portion 16. The side walls 40 and 41 have upper edges 46 which contact the edges 22 of the side walls 14, 14a of the casing. At the forward end of casing wall 42 are upper aligned spaced longitudinal edges 48 and 49 adapted to contact the edges 28 and 29 of the upper casing. Between edges 48, 49 is a recess or channel 50 complementary with channel 30 of the upper

casing and forming an air passage therewith. Edge 48 is formed with a notch 48a registering with notch 31, to form a passage for a drive belt, as will appear hereinafter.

Wall 40 is formed with a semi-circular upwardly extending flange 51 adapted to be received within the notch 20 of wall 14 of the upper casing section. Said flange 51 is formed with a bearing opening 52 axially disposed with respect to the casing. The lower casing section is furthermore formed with a transverse partition 53 aligned with the rib 17 of the upper casing. Partition 53 comprises a semi-annular rib portion 54 having upper edges 54a adapted to contact the end edges 17a of rib 17. Extending upwardly from rib 54 is a radial tongue 55 provided with a semi-circular portion 56 which projects above the upper edges 54a of said rib. Tongue 56 is formed with an axial through opening 57 similar to opening 52. Rib 54 connects with longitudinal edge 49 of the lower casing section as shown in Fig. 7 of the drawing. Said lower casing section is furthermore formed with a transverse partition 60 parallel to rib 54 and spaced therefrom and interconnecting with edge 48. Said partition 60 has an upper edge 61 at the level of the upper edge 43. It is formed with an axial semi-circular bearing opening 62. Said partition 60 is furthermore formed with a pair of spaced semi-annular upwardly extending lugs 63 each provided with a through opening 64.

It will now be understood that between walls 40, 14 and ribs 54, 17 is a chamber 65 for a suction fan as will appear hereinafter. Between ribs 54, 17 and 60 is a passage 66 which communicates with the passage formed by the combined channels 30 and 50. Fan chamber 65 thus communicates through openings 67 in wall 54 with passages 66 and 30, 50, and hence with chamber 68 formed by the casing portion 15 which houses a combing and pressing roller 69 as will appear hereinafter.

Between walls 60 and 41, 14a is a motor chamber 70. Walls 40 and 41 extend forwardly beyond casing wall 42 as at 71 and 72, respectively, said extensions underlying the forward ends of the side walls of the upper casing section. Said extensions are formed on their inner surfaces with part circular recesses 74 which together with the recesses 37 form circular recesses. The axis for said circular recesses is below the upper edges 46 of the lower casing. Wall extension 72 and the portion of wall 14 adjacent thereto is formed with a drilled opening 75 co-axial with the recess in said wall. The lower casing is formed in the upper surface thereof and at the four corners thereof with tapped openings 76 registering with the openings 32. Said side walls are also formed with tapped openings 77 registering with openings 33. Said walls 71, 72 are also formed adjacent the forward ends thereof with aligned horizontal through openings 78.

The lower casing is provided on the underside thereof and at the forward end of the casing wall 42, with a thickened portion 80 formed with a horizontal through opening 81. Said thickened portion and also the wall extension 71, 72 are formed with a flat undersurface 83 disposed at an angle to the top edge of said casing. Said lower casing section is also formed with a rearwardly extending tubular mouth 84 communicating with chamber 65. The tube 84 is parallel to the upper edge of the lower casing section. Said lower casing section is also formed with a nipple extension 86 communicating with passage 66. The

nipple 86 is centrally located relative to the lower casing section, and is on an axis inclined downwardly and rearwardly relative to the upper edge of said section. Said nipple extension 86 is formed with a tapped opening 87 and is provided with a passage 88 communicating with passage 66. Said tubular extension or nipple 86 is formed at its underside with a blind tapped opening 91 for the purpose hereinafter appearing.

The top and bottom casing sections are attached together by screws passing through the through openings 32 and 33 and screwed into the threaded openings 76 and 77.

Attached to the brackets 63 by means of screws passing through the openings 64 is a motor M provided with a horizontal output shaft 92. The shaft 92 rests within the semi-circular opening 62 and is coupled to a fan shaft 92a which passes through the through openings 57 and 52. The fan shaft 92a which passes through the fan chamber 65 carries a rotary fan 93 adapted to blow air through the tubular passage 84. The fan hence sucks air into the casing through the roller chamber 68, through channel 38, 50 and passages 66 and opening 67. It will be noted that the inlet side of the fan is toward the passage 66.

The motor M is provided with a pulley 94 for the purpose hereinafter appearing.

Rotatably mounted on and between the side extensions 71, 72 in the manner hereinafter appearing is the processing roller 69. Said roller 69 comprises a sleeve 95 formed with a through opening 96. Sleeve 95 has end portions 97 of reduced outer diameter. On one of said terminal portions is fixed a pulley 98 aligned with pulley 94. Received on said pulleys 94, 98 is a drive belt 99 passing through the combined notches 31, 48a. On the ends of the terminal portions 97 are bushings 100 having annular flange portions received within the recesses 74, 37 in the walls 14, 14a. The portion of the roller between the reduced ends is formed with a pair of oppositely disposed, helically extending flat surfaces 101. Said surfaces 101 are each formed with a helical row of spaced openings 102. Force fitted into each opening is a radial pin 103 projecting beyond said flat surfaces. The pins 103 constituting comb teeth for combing the fur or fabric.

Said roller is furthermore formed with oppositely helically extending flats 105 leading from the flat surfaces 101. Extending from said flat surfaces 105 are outwardly inclined surfaces 106 forming oppositely extending, helical edges 107. Between the edges 107 and the flats 101 are helically extending part cylindrical surfaces 108. The roller is rotated by the motor in a clockwise direction looking at Fig. 3 of the drawing.

Inserted within the through opening 96 is an electric unit heater 110. The heater 110 may be inserted through the opening 75 and fixed to the casing by a friction fit or set screw. The unit heater is spaced from the roller and may thus be stationary while the roller rotates. An additional electric heater 111 may be inserted into opening 81 of the lower casing, the heaters being wired to connections extending externally of the casing. Attached to tube 84 is a bag 112 similar to a vacuum cleaner bag.

Contacting surface 24 on the top of the casing is an upwardly and rearwardly curved handle 113 which may be attached to the projection 23 by means of screws passing through openings in the handle and screwed to the threaded openings

35. It will be noted that tube 84 is at a tangent to the circular fan chamber 65 to receive air therefrom. Attached to tube 86 is a hollow straight handle 115 which may be screwed into the threaded opening 87. An electric cord 116 provided with a plug 117 for connection to any suitable wall outlet extends into the handle and may extend through the handle and through opening 88 for connection to the motor.

Pivotaly mounted to the underside of the casing is a skid plate 120 adapted to contact the fur being processed. Said plate 120 comprises a plate portion 121 disposed below surface 83. Plate portion 121 is provided with an opening 122 registering with chamber 68. The roller projects into said opening 122. Extending from plate portion 121 is a rearwardly extending arm 123 formed with a bifurcation to provide a pair of parallel arms 124. The arms 124 are formed with aligned longitudinal slots 125 for the purpose hereinafter appearing.

Screwed into the opening 91 is a screw 126 having a downwardly extending pin portion 127 formed with an annular groove 128. Fitted over pin 127 is a sleeve 130. Extending through the sleeve 130 is a pin 131 projecting into groove 128 to permit rotation of the sleeve relative to said pin.

Pressed fitted onto the sleeve 130 is a non-metallic finger knob 132. The sleeve 130 is formed at its lower end with an axial screw threaded opening 133. Screwed into said opening is a screw 134, provided with a head 135 at its lower end. Extending through head 135 is a horizontal pin 136 which projects into the slots 125 of the bifurcated arms 124 of the skid plate. Interposed between the skid plate and the underside of sleeve 130 and disposed about screw 134 is a coil compression spring 140. Rotation of the non-metallic knob 132 raises and lowers the skid plate. The spring 140 serves to lessen the tendency of unwanted rotation due to vibration.

The skid plate 120 is provided at the forward corners thereof with upstanding apertured ears 150 having openings registering with the openings 78. Extending through said ears and opening 78 are pivot pins 151 for pivotally connecting the skid plate to the casing.

In operation, the device is pulled over the fur or fabric to be processed. The motor rotates the roller; the fan rotates; and the heaters are heated. The teeth comb the hairs. The heat applies a sheen to the fur and the blower operates as a vacuum cleaner.

Furthermore, since the device is essentially a vacuum cleaner, the fur is pulled into the openings at the bottom providing uniformity of pressure on the fur to facilitate combing and sheening. It will be noted that all the processes are done in one operation at substantially the same time and there is no time lag between the combing, the ironing or sheening, and the cleaning. The hairs are straightened as they are combed due to contact of the pins with the hairs.

The skid plate is adjustable for hairs of different length so that the combing pins will not cut into the fur skin. Either one or two heaters may be used. The device is preferably provided with suitable switches for the motor and for the separate and combined heater.

The heaters are preferably controlled by usual thermostats set for maximum heat.

Furthermore, various rollers may be provided substituting wire brushes for the steel pins. Obviously, the device may be used as a vacuum

cleaner only or as a comb only or as a sheener only.

In assembling the device, the roller with the two brass bushings thereon is placed in the recesses 14. Prior to placing the roller on the lower casing the belt from the motor is wrapped around the motor pulley and that of the roller. The mating casting or cover casing section also has two recesses 37 as explained above, to receive the upper parts of the bushings. The complete circular recesses in the assembled casings restrain the bushings against rotation and permits the roller when driven to revolve freely relative to the fixed bushings.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A portable device movable manually over the exterior of a fur garment for dust cleaning, heating, ironing and glazing the fur of said garment and comprising a casing, a handle positioned over said casing and adapted to be gripped by the hand of the operator for moving the casing over the garment, said casing having a transverse opening at its bottom, a roller, means for mounting said roller for rotation within the casing above said opening and coextensively therewith, said roller projecting into said opening, a motor within said casing, drive means to connect said motor with said roller, a fan in said casing, drive means to connect said fan with said motor, the inlet end of said fan being in communication with said opening so as to produce a suction of air at said opening when the motor drives the fan, for dust cleaning the fur of the garment, said roller being formed with an axial opening, an electric heating unit within said axial opening, for heating the roller, said roller having at its exterior, helically extending partly cylindrical surfaces for ironing the fur, and said roller being formed with helically extending grooves between said partly cylindrical surfaces, and each of said grooves having a helical edge for glazing the fur as said device is moved over the fur and pressed thereagainst.

2. A portable device movable manually over the exterior of a fur garment for dust cleaning, heating, ironing and glazing the fur of said garment and comprising a casing, a handle positioned over said casing and adapted to be gripped by the hand of the operator for moving the casing over the garment, said casing having a transverse opening at its bottom, a roller, means for mounting said roller for rotation within the casing above said opening and coextensively therewith, said roller projecting into said opening, a motor within said casing, drive means to connect said motor with said roller, a fan in said casing, drive means to connect said fan with said motor, the inlet end of said fan being in communication with said opening so as to produce a suction of air at said opening when the motor drives the fan, for dust cleaning the fur of the garment, said roller being

formed with an axial opening, an electric heating unit within said axial opening, for heating the roller, said roller having at its exterior, helically extending partly cylindrical surfaces for ironing the fur, and said roller being formed with helically extending grooves between said partly cylindrical surfaces, and each of said grooves having a helical edge for glazing the fur as the device is moved over the fur and pressed thereagainst, said roller being furthermore formed at its exterior surface with flat, helically extending surfaces, and pins projecting from said flat surfaces, for combing the fur.

3. A portable device movable manually over the exterior of a fur garment for dust cleaning, heating, ironing and glazing the fur of said garment and comprising a casing, a handle positioned over said casing and adapted to be gripped by the hand of the operator for moving the casing over the garment, said casing having a transverse opening at its bottom, a roller, means for mounting said roller for rotation within the casing above said opening and coextensively therewith, said roller projecting into said opening, a motor within said casing, drive means to connect said motor with said roller, a fan in said casing, drive means to connect said fan with said motor, the inlet end of said fan being in communication with said opening so as to produce a suction of air at said opening when the motor drives the fan, for dust cleaning the fur of the garment, said roller being formed with an axial opening, an electric heating unit within said axial opening, for heating the roller, said roller having at its exterior, helically extending partly cylindrical surfaces for ironing the fur, and said roller being formed with helically extending grooves between said partly cylindrical surfaces, and each of said grooves having a helical edge for glazing the fur as the device is moved over the fur and pressed thereagainst, said roller being furthermore formed at its exterior surface with flat, helically extending surfaces, and pins projecting from said flat surfaces for combing the fur, said casing being formed with a through opening parallel to the roller and rearwardly thereof, and a second electric heating unit in said last mentioned through opening.

4. A portable device movable manually over the exterior of a fur garment for dust cleaning, heating, ironing and glazing the fur of said garment and comprising a casing, a handle positioned over said casing and adapted to be gripped by the hand of the operator for moving the casing over the garment, said casing having a transverse opening at its bottom, a roller, means for mounting said roller for rotation within the casing above said opening and coextensively therewith, said roller projecting into said opening, a motor within said casing, drive means to connect said motor with said roller, a fan in said casing, drive means to connect said fan with said motor, the inlet end of said fan being in communication with said opening so as to produce a suction of air at said opening when the motor drives fan, for dust cleaning the fur of the garment, said roller being formed with an axial opening, an electric heating unit within said axial opening for heating the roller, said roller having at its exterior, partly cylindrical surfaces for ironing the fur, and said roller being formed with grooves be-

tween said partly cylindrical surfaces, and each of said grooves having an edge for glazing the fur as said device is moved over the fur and pressed thereagainst.

MAX KOCH. 5

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